

# **US ROCKIES REGION PLANNING**

**COLORADO CENTRAL ZONE - 83**

**ARAPAHOE\_WATKINS 6 PAD**

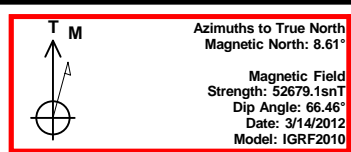
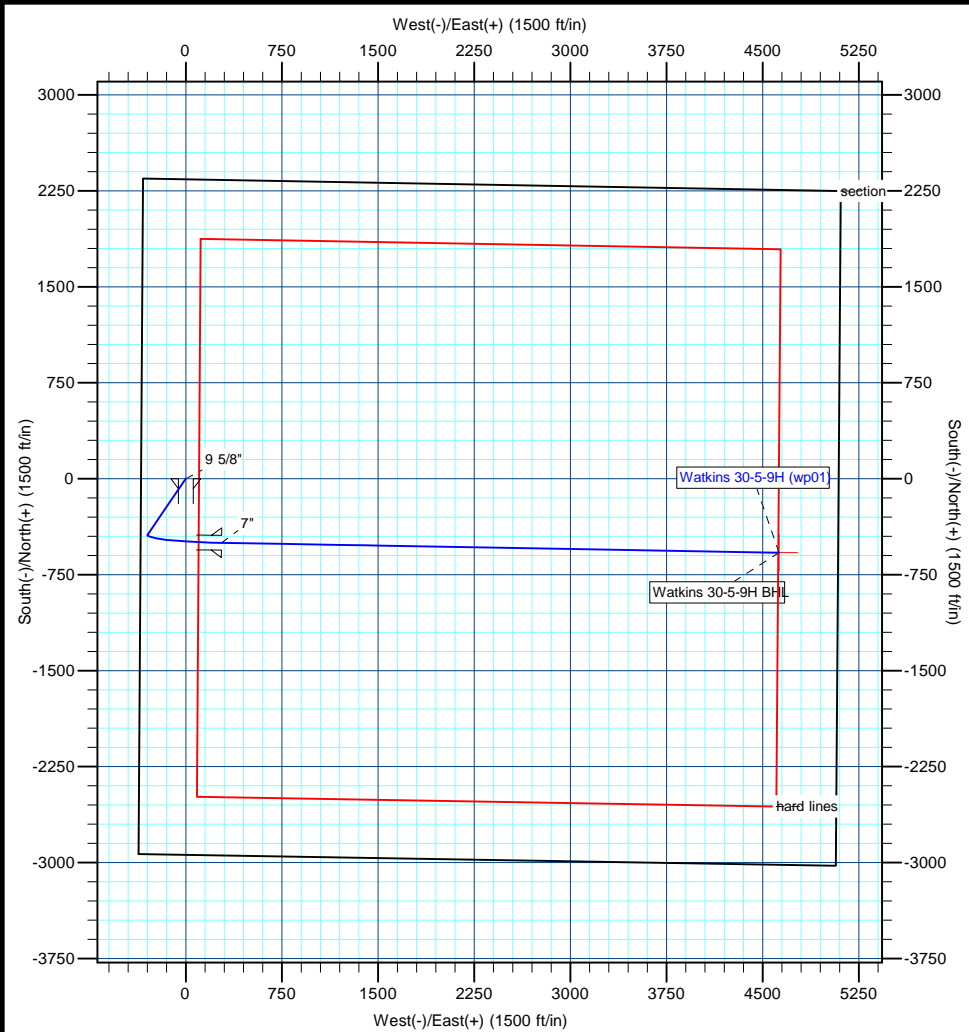
**Watkins 30-5-9H**

**Watkins 30-5-9H**

**Plan: Watkins 30-5-9H (wp01)**

## **Standard Planning Report**

**14 March, 2012**



Project: COLORADO CENTRAL ZONE - 83  
Site: ARAPAHOE WATKINS 6 PAD  
Well: Watkins 30-5-9H  
Wellbore: Watkins 30-5-9H  
Section:  
SHL:  
Design: Watkins 30-5-9H (wp01)  
Latitude: 39.675304  
Longitude: -104.602256  
GL: 5771.00  
KB: rkb + gl @ 5796.00ft

#### WELL DETAILS: Watkins 30-5-9H

| +N/-S | +E/-W | Northing   | Ground Level:<br>Easting | 5771.00<br>Latitude | 39.675304<br>Longitude | Slot |
|-------|-------|------------|--------------------------|---------------------|------------------------|------|
| 0.00  | 0.00  | 1672106.85 | 3252694.26               | 39.675304           | -104.602256            |      |

#### SECTION DETAILS

| MD      | Inc   | Azi    | TVD     | +N/-S   | +E/-W   | Dleg  | TFace   | V Sect  |
|---------|-------|--------|---------|---------|---------|-------|---------|---------|
| 0.00    | 0.00  | 0.00   | 0.00    | 0.00    | 0.00    | 0.00  | 0.00    | 0.00    |
| 2150.00 | 0.00  | 0.00   | 2150.00 | 0.00    | 0.00    | 0.00  | 0.00    | 0.00    |
| 2457.49 | 6.15  | 214.25 | 2456.90 | -13.63  | -9.28   | 2.00  | 214.25  | -7.52   |
| 7239.91 | 6.15  | 214.25 | 7211.80 | -437.12 | -297.60 | 0.00  | 0.00    | -241.14 |
| 8180.24 | 90.66 | 90.86  | 7816.00 | -500.79 | 280.00  | 10.00 | -123.18 | 339.90  |
| 8196.00 | 90.66 | 91.02  | 7815.82 | -501.05 | 295.76  | 1.00  | 88.86   | 355.57  |
| 2530.01 | 90.66 | 91.02  | 7766.00 | -578.01 | 4628.80 | 0.00  | 0.00    | 4664.75 |

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

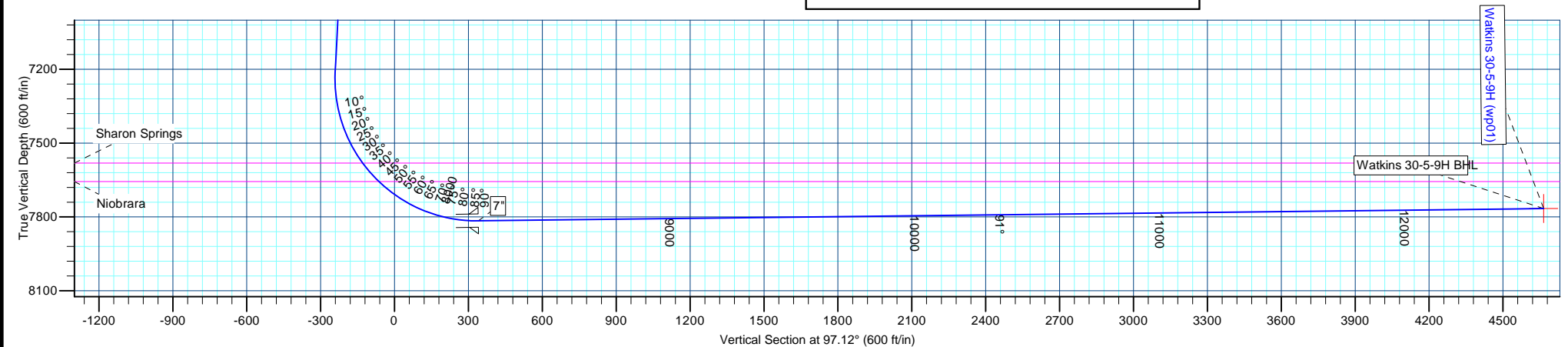
| Name                | TVD     | +N/-S   | +E/-W   | Latitude  | Longitude   | Shape |
|---------------------|---------|---------|---------|-----------|-------------|-------|
| Watkins 30-5-9H BHL | 7766.00 | -578.01 | 4628.80 | 39.673716 | -104.585812 | Point |

#### FORMATION TOP DETAILS

| TVDPath | MDPath  | Formation      |
|---------|---------|----------------|
| 1863.00 | 1863.00 | Fox Hills      |
| 5132.00 | 5148.07 | Sussex         |
| 6202.00 | 6224.27 | Shannon        |
| 7581.00 | 7633.89 | Sharon Springs |
| 7656.00 | 7733.83 | Niobrara       |

#### CASING DETAILS

| TVD     | MD      | Name   | Size  |
|---------|---------|--------|-------|
| 2010.00 | 2010.00 | 9 5/8" | 9-5/8 |
| 7816.00 | 8180.24 | 7"     | 7     |



# Anadarko Petroleum Corp

## Planning Report

|                  |                            |                                     |                      |
|------------------|----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                       | <b>Local Co-ordinate Reference:</b> | Well Watkins 30-5-9H |
| <b>Company:</b>  | US ROCKIES REGION PLANNING | <b>TVD Reference:</b>               | rkb + gl @ 5796.00ft |
| <b>Project:</b>  | COLORADO CENTRAL ZONE - 83 | <b>MD Reference:</b>                | rkb + gl @ 5796.00ft |
| <b>Site:</b>     | ARAPAHOE_WATKINS 6 PAD     | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | Watkins 30-5-9H            | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | Watkins 30-5-9H            |                                     |                      |
| <b>Design:</b>   | Watkins 30-5-9H (wp01)     |                                     |                      |

|                    |                            |                      |                |
|--------------------|----------------------------|----------------------|----------------|
| <b>Project</b>     | COLORADO CENTRAL ZONE - 83 |                      |                |
| <b>Map System:</b> | US State Plane 1983        | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983  |                      |                |
| <b>Map Zone:</b>   | Colorado Central Zone      |                      |                |

|                              |                        |                     |                   |                                 |
|------------------------------|------------------------|---------------------|-------------------|---------------------------------|
| <b>Site</b>                  | ARAPAHOE_WATKINS 6 PAD |                     |                   |                                 |
| <b>Site Position:</b>        |                        | <b>Northing:</b>    | 1,672,196.84 usft | <b>Latitude:</b> 39.675551      |
| <b>From:</b>                 | Lat/Long               | <b>Easting:</b>     | 3,252,694.22 usft | <b>Longitude:</b> -104.602253   |
| <b>Position Uncertainty:</b> | 0.00 ft                | <b>Slot Radius:</b> | 13-3/16 "         | <b>Grid Convergence:</b> 0.57 ° |

|                             |                 |           |                            |                                  |
|-----------------------------|-----------------|-----------|----------------------------|----------------------------------|
| <b>Well</b>                 | Watkins 30-5-9H |           |                            |                                  |
| <b>Well Position</b>        | <b>+N/-S</b>    | -89.99 ft | <b>Northing:</b>           | 1,672,106.85 usft                |
|                             | <b>+E/-W</b>    | -0.84 ft  | <b>Easting:</b>            | 3,252,694.26 usft                |
| <b>Position Uncertainty</b> |                 | 0.00 ft   | <b>Wellhead Elevation:</b> | <b>Ground Level:</b> 5,771.00 ft |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Watkins 30-5-9H   |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2010          | 3/14/2012          | 8.61                   | 66.46                | 52,679                     |

|                          |                         |              |                      |                  |
|--------------------------|-------------------------|--------------|----------------------|------------------|
| <b>Design</b>            | Watkins 30-5-9H (wp01)  |              |                      |                  |
| <b>Audit Notes:</b>      |                         |              |                      |                  |
| <b>Version:</b>          | <b>Phase:</b>           | PLAN         | <b>Tie On Depth:</b> | 0.00             |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S</b> | <b>+E/-W</b>         | <b>Direction</b> |
|                          | (ft)                    | (ft)         | (ft)                 | (°)              |
|                          | 0.00                    | 0.00         | 0.00                 | 97.12            |

|                       |                    |                |                       |              |              |                    |                   |                  |            |                     |
|-----------------------|--------------------|----------------|-----------------------|--------------|--------------|--------------------|-------------------|------------------|------------|---------------------|
| <b>Plan Sections</b>  |                    |                |                       |              |              |                    |                   |                  |            |                     |
| <b>Measured Depth</b> | <b>Inclination</b> | <b>Azimuth</b> | <b>Vertical Depth</b> | <b>+N/-S</b> | <b>+E/-W</b> | <b>Dogleg Rate</b> | <b>Build Rate</b> | <b>Turn Rate</b> | <b>TFO</b> | <b>Target</b>       |
| (ft)                  | (°)                | (°)            | (ft)                  | (ft)         | (ft)         | (°/100usft)        | (°/100usft)       | (°/100usft)      | (°)        |                     |
| 0.00                  | 0.00               | 0.00           | 0.00                  | 0.00         | 0.00         | 0.00               | 0.00              | 0.00             | 0.00       |                     |
| 2,150.00              | 0.00               | 0.00           | 2,150.00              | 0.00         | 0.00         | 0.00               | 0.00              | 0.00             | 0.00       |                     |
| 2,457.49              | 6.15               | 214.25         | 2,456.90              | -13.63       | -9.28        | 2.00               | 2.00              | 0.00             | 214.25     |                     |
| 7,239.91              | 6.15               | 214.25         | 7,211.80              | -437.12      | -297.60      | 0.00               | 0.00              | 0.00             | 0.00       |                     |
| 8,180.24              | 90.66              | 90.86          | 7,816.00              | -500.79      | 280.00       | 10.00              | 8.99              | -13.12           | -123.18    |                     |
| 8,196.00              | 90.66              | 91.02          | 7,815.82              | -501.05      | 295.76       | 1.00               | 0.02              | 1.00             | 88.86      |                     |
| 12,530.01             | 90.66              | 91.02          | 7,766.00              | -578.01      | 4,628.80     | 0.00               | 0.00              | 0.00             | 0.00       | Watkins 30-5-9H BHL |

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## Planning Report

|                  |                            |                                     |                      |
|------------------|----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                       | <b>Local Co-ordinate Reference:</b> | Well Watkins 30-5-9H |
| <b>Company:</b>  | US ROCKIES REGION PLANNING | <b>TVD Reference:</b>               | rkb + gl @ 5796.00ft |
| <b>Project:</b>  | COLORADO CENTRAL ZONE - 83 | <b>MD Reference:</b>                | rkb + gl @ 5796.00ft |
| <b>Site:</b>     | ARAPAHOE_WATKINS 6 PAD     | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | Watkins 30-5-9H            | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | Watkins 30-5-9H            |                                     |                      |
| <b>Design:</b>   | Watkins 30-5-9H (wp01)     |                                     |                      |

| Planned Survey      |                 |             |                     |            |            |                       |                         |                        |                       |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.00                | 0.00            | 0.00        | 0.00                | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 100.00              | 0.00            | 0.00        | 100.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 200.00              | 0.00            | 0.00        | 200.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 300.00              | 0.00            | 0.00        | 300.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 400.00              | 0.00            | 0.00        | 400.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 500.00              | 0.00            | 0.00        | 500.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 600.00              | 0.00            | 0.00        | 600.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 700.00              | 0.00            | 0.00        | 700.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 800.00              | 0.00            | 0.00        | 800.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 900.00              | 0.00            | 0.00        | 900.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,000.00            | 0.00            | 0.00        | 1,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,100.00            | 0.00            | 0.00        | 1,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,200.00            | 0.00            | 0.00        | 1,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,300.00            | 0.00            | 0.00        | 1,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,400.00            | 0.00            | 0.00        | 1,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,500.00            | 0.00            | 0.00        | 1,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,600.00            | 0.00            | 0.00        | 1,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,700.00            | 0.00            | 0.00        | 1,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,800.00            | 0.00            | 0.00        | 1,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,863.00            | 0.00            | 0.00        | 1,863.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| Fox Hills           |                 |             |                     |            |            |                       |                         |                        |                       |
| 1,900.00            | 0.00            | 0.00        | 1,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,000.00            | 0.00            | 0.00        | 2,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,010.00            | 0.00            | 0.00        | 2,010.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9 5/8"              |                 |             |                     |            |            |                       |                         |                        |                       |
| 2,100.00            | 0.00            | 0.00        | 2,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,150.00            | 0.00            | 0.00        | 2,150.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,200.00            | 1.00            | 214.25      | 2,200.00            | -0.36      | -0.25      | -0.20                 | 2.00                    | 2.00                   | 0.00                  |
| 2,300.00            | 3.00            | 214.25      | 2,299.93            | -3.25      | -2.21      | -1.79                 | 2.00                    | 2.00                   | 0.00                  |
| 2,400.00            | 5.00            | 214.25      | 2,399.68            | -9.01      | -6.13      | -4.97                 | 2.00                    | 2.00                   | 0.00                  |
| 2,457.49            | 6.15            | 214.25      | 2,456.90            | -13.63     | -9.28      | -7.52                 | 2.00                    | 2.00                   | 0.00                  |
| 2,500.00            | 6.15            | 214.25      | 2,499.17            | -17.39     | -11.84     | -9.59                 | 0.00                    | 0.00                   | 0.00                  |
| 2,600.00            | 6.15            | 214.25      | 2,598.59            | -26.25     | -17.87     | -14.48                | 0.00                    | 0.00                   | 0.00                  |
| 2,700.00            | 6.15            | 214.25      | 2,698.01            | -35.10     | -23.90     | -19.36                | 0.00                    | 0.00                   | 0.00                  |
| 2,800.00            | 6.15            | 214.25      | 2,797.44            | -43.96     | -29.93     | -24.25                | 0.00                    | 0.00                   | 0.00                  |
| 2,900.00            | 6.15            | 214.25      | 2,896.86            | -52.81     | -35.96     | -29.13                | 0.00                    | 0.00                   | 0.00                  |
| 3,000.00            | 6.15            | 214.25      | 2,996.29            | -61.67     | -41.98     | -34.02                | 0.00                    | 0.00                   | 0.00                  |
| 3,100.00            | 6.15            | 214.25      | 3,095.71            | -70.52     | -48.01     | -38.90                | 0.00                    | 0.00                   | 0.00                  |
| 3,200.00            | 6.15            | 214.25      | 3,195.14            | -79.38     | -54.04     | -43.79                | 0.00                    | 0.00                   | 0.00                  |
| 3,300.00            | 6.15            | 214.25      | 3,294.56            | -88.23     | -60.07     | -48.67                | 0.00                    | 0.00                   | 0.00                  |
| 3,400.00            | 6.15            | 214.25      | 3,393.99            | -97.09     | -66.10     | -53.56                | 0.00                    | 0.00                   | 0.00                  |
| 3,500.00            | 6.15            | 214.25      | 3,493.41            | -105.94    | -72.13     | -58.45                | 0.00                    | 0.00                   | 0.00                  |
| 3,600.00            | 6.15            | 214.25      | 3,592.84            | -114.80    | -78.16     | -63.33                | 0.00                    | 0.00                   | 0.00                  |
| 3,700.00            | 6.15            | 214.25      | 3,692.26            | -123.66    | -84.19     | -68.22                | 0.00                    | 0.00                   | 0.00                  |
| 3,800.00            | 6.15            | 214.25      | 3,791.68            | -132.51    | -90.22     | -73.10                | 0.00                    | 0.00                   | 0.00                  |
| 3,900.00            | 6.15            | 214.25      | 3,891.11            | -141.37    | -96.24     | -77.99                | 0.00                    | 0.00                   | 0.00                  |
| 4,000.00            | 6.15            | 214.25      | 3,990.53            | -150.22    | -102.27    | -82.87                | 0.00                    | 0.00                   | 0.00                  |
| 4,100.00            | 6.15            | 214.25      | 4,089.96            | -159.08    | -108.30    | -87.76                | 0.00                    | 0.00                   | 0.00                  |
| 4,200.00            | 6.15            | 214.25      | 4,189.38            | -167.93    | -114.33    | -92.64                | 0.00                    | 0.00                   | 0.00                  |
| 4,300.00            | 6.15            | 214.25      | 4,288.81            | -176.79    | -120.36    | -97.53                | 0.00                    | 0.00                   | 0.00                  |
| 4,400.00            | 6.15            | 214.25      | 4,388.23            | -185.64    | -126.39    | -102.41               | 0.00                    | 0.00                   | 0.00                  |
| 4,500.00            | 6.15            | 214.25      | 4,487.66            | -194.50    | -132.42    | -107.30               | 0.00                    | 0.00                   | 0.00                  |
| 4,600.00            | 6.15            | 214.25      | 4,587.08            | -203.35    | -138.45    | -112.18               | 0.00                    | 0.00                   | 0.00                  |
| 4,700.00            | 6.15            | 214.25      | 4,686.51            | -212.21    | -144.47    | -117.07               | 0.00                    | 0.00                   | 0.00                  |

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## Planning Report

|                  |                            |                                     |                      |
|------------------|----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                       | <b>Local Co-ordinate Reference:</b> | Well Watkins 30-5-9H |
| <b>Company:</b>  | US ROCKIES REGION PLANNING | <b>TVD Reference:</b>               | rkb + gl @ 5796.00ft |
| <b>Project:</b>  | COLORADO CENTRAL ZONE - 83 | <b>MD Reference:</b>                | rkb + gl @ 5796.00ft |
| <b>Site:</b>     | ARAPAHOE_WATKINS 6 PAD     | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | Watkins 30-5-9H            | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | Watkins 30-5-9H            |                                     |                      |
| <b>Design:</b>   | Watkins 30-5-9H (wp01)     |                                     |                      |

| Planned Survey        |                 |             |                     |            |            |                       |                         |                        |                       |
|-----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft)   | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,800.00              | 6.15            | 214.25      | 4,785.93            | -221.06    | -150.50    | -121.95               | 0.00                    | 0.00                   | 0.00                  |
| 4,900.00              | 6.15            | 214.25      | 4,885.35            | -229.92    | -156.53    | -126.84               | 0.00                    | 0.00                   | 0.00                  |
| 5,000.00              | 6.15            | 214.25      | 4,984.78            | -238.77    | -162.56    | -131.72               | 0.00                    | 0.00                   | 0.00                  |
| 5,100.00              | 6.15            | 214.25      | 5,084.20            | -247.63    | -168.59    | -136.61               | 0.00                    | 0.00                   | 0.00                  |
| 5,148.07              | 6.15            | 214.25      | 5,132.00            | -251.89    | -171.49    | -138.95               | 0.00                    | 0.00                   | 0.00                  |
| <b>Sussex</b>         |                 |             |                     |            |            |                       |                         |                        |                       |
| 5,200.00              | 6.15            | 214.25      | 5,183.63            | -256.48    | -174.62    | -141.49               | 0.00                    | 0.00                   | 0.00                  |
| 5,300.00              | 6.15            | 214.25      | 5,283.05            | -265.34    | -180.65    | -146.38               | 0.00                    | 0.00                   | 0.00                  |
| 5,400.00              | 6.15            | 214.25      | 5,382.48            | -274.19    | -186.68    | -151.26               | 0.00                    | 0.00                   | 0.00                  |
| 5,500.00              | 6.15            | 214.25      | 5,481.90            | -283.05    | -192.70    | -156.15               | 0.00                    | 0.00                   | 0.00                  |
| 5,600.00              | 6.15            | 214.25      | 5,581.33            | -291.91    | -198.73    | -161.03               | 0.00                    | 0.00                   | 0.00                  |
| 5,700.00              | 6.15            | 214.25      | 5,680.75            | -300.76    | -204.76    | -165.92               | 0.00                    | 0.00                   | 0.00                  |
| 5,800.00              | 6.15            | 214.25      | 5,780.18            | -309.62    | -210.79    | -170.80               | 0.00                    | 0.00                   | 0.00                  |
| 5,900.00              | 6.15            | 214.25      | 5,879.60            | -318.47    | -216.82    | -175.69               | 0.00                    | 0.00                   | 0.00                  |
| 6,000.00              | 6.15            | 214.25      | 5,979.02            | -327.33    | -222.85    | -180.57               | 0.00                    | 0.00                   | 0.00                  |
| 6,100.00              | 6.15            | 214.25      | 6,078.45            | -336.18    | -228.88    | -185.46               | 0.00                    | 0.00                   | 0.00                  |
| 6,200.00              | 6.15            | 214.25      | 6,177.87            | -345.04    | -234.91    | -190.34               | 0.00                    | 0.00                   | 0.00                  |
| 6,224.27              | 6.15            | 214.25      | 6,202.00            | -347.19    | -236.37    | -191.53               | 0.00                    | 0.00                   | 0.00                  |
| <b>Shannon</b>        |                 |             |                     |            |            |                       |                         |                        |                       |
| 6,300.00              | 6.15            | 214.25      | 6,277.30            | -353.89    | -240.93    | -195.23               | 0.00                    | 0.00                   | 0.00                  |
| 6,400.00              | 6.15            | 214.25      | 6,376.72            | -362.75    | -246.96    | -200.11               | 0.00                    | 0.00                   | 0.00                  |
| 6,500.00              | 6.15            | 214.25      | 6,476.15            | -371.60    | -252.99    | -205.00               | 0.00                    | 0.00                   | 0.00                  |
| 6,600.00              | 6.15            | 214.25      | 6,575.57            | -380.46    | -259.02    | -209.88               | 0.00                    | 0.00                   | 0.00                  |
| 6,700.00              | 6.15            | 214.25      | 6,675.00            | -389.31    | -265.05    | -214.77               | 0.00                    | 0.00                   | 0.00                  |
| 6,800.00              | 6.15            | 214.25      | 6,774.42            | -398.17    | -271.08    | -219.65               | 0.00                    | 0.00                   | 0.00                  |
| 6,900.00              | 6.15            | 214.25      | 6,873.84            | -407.02    | -277.11    | -224.54               | 0.00                    | 0.00                   | 0.00                  |
| 7,000.00              | 6.15            | 214.25      | 6,973.27            | -415.88    | -283.14    | -229.42               | 0.00                    | 0.00                   | 0.00                  |
| 7,100.00              | 6.15            | 214.25      | 7,072.69            | -424.73    | -289.17    | -234.31               | 0.00                    | 0.00                   | 0.00                  |
| 7,200.00              | 6.15            | 214.25      | 7,172.12            | -433.59    | -295.19    | -239.19               | 0.00                    | 0.00                   | 0.00                  |
| 7,239.91              | 6.15            | 214.25      | 7,211.80            | -437.12    | -297.60    | -241.14               | 0.00                    | 0.00                   | 0.00                  |
| 7,300.00              | 5.78            | 153.75      | 7,271.62            | -442.50    | -298.07    | -240.95               | 10.00                   | -0.62                  | -100.67               |
| 7,400.00              | 13.63           | 112.72      | 7,370.21            | -451.59    | -284.95    | -226.80               | 10.00                   | 7.85                   | -41.03                |
| 7,500.00              | 23.18           | 103.05      | 7,465.00            | -460.61    | -254.83    | -195.80               | 10.00                   | 9.56                   | -9.67                 |
| 7,600.00              | 32.99           | 98.89       | 7,553.13            | -469.28    | -208.64    | -148.89               | 10.00                   | 9.81                   | -4.17                 |
| 7,633.89              | 36.34           | 97.95       | 7,581.00            | -472.10    | -189.57    | -129.61               | 10.00                   | 9.87                   | -2.78                 |
| <b>Sharon Springs</b> |                 |             |                     |            |            |                       |                         |                        |                       |
| 7,700.00              | 42.88           | 96.48       | 7,631.90            | -477.35    | -147.78    | -87.49                | 10.00                   | 9.90                   | -2.22                 |
| 7,733.83              | 46.24           | 95.86       | 7,656.00            | -479.90    | -124.18    | -63.76                | 10.00                   | 9.92                   | -1.82                 |
| <b>Niobrara</b>       |                 |             |                     |            |            |                       |                         |                        |                       |
| 7,800.00              | 52.81           | 94.84       | 7,698.93            | -484.57    | -74.09     | -13.48                | 10.00                   | 9.93                   | -1.55                 |
| 7,900.00              | 62.75           | 93.58       | 7,752.18            | -490.72    | 10.18      | 70.90                 | 10.00                   | 9.94                   | -1.26                 |
| 8,000.00              | 72.71           | 92.53       | 7,790.03            | -495.60    | 102.47     | 163.09                | 10.00                   | 9.95                   | -1.05                 |
| 8,100.00              | 82.66           | 91.58       | 7,811.33            | -499.09    | 199.98     | 260.28                | 10.00                   | 9.96                   | -0.94                 |
| 8,180.24              | 90.66           | 90.86       | 7,816.00            | -500.79    | 280.00     | 339.90                | 10.00                   | 9.96                   | -0.90                 |
| <b>7"</b>             |                 |             |                     |            |            |                       |                         |                        |                       |
| 8,196.00              | 90.66           | 91.02       | 7,815.82            | -501.05    | 295.76     | 355.57                | 1.00                    | 0.02                   | 1.00                  |
| 8,200.00              | 90.66           | 91.02       | 7,815.77            | -501.12    | 299.76     | 359.54                | 0.00                    | 0.00                   | 0.00                  |
| 8,300.00              | 90.66           | 91.02       | 7,814.62            | -502.90    | 399.74     | 458.97                | 0.00                    | 0.00                   | 0.00                  |
| 8,400.00              | 90.66           | 91.02       | 7,813.47            | -504.67    | 499.71     | 558.40                | 0.00                    | 0.00                   | 0.00                  |
| 8,500.00              | 90.66           | 91.02       | 7,812.32            | -506.45    | 599.69     | 657.83                | 0.00                    | 0.00                   | 0.00                  |
| 8,600.00              | 90.66           | 91.02       | 7,811.18            | -508.22    | 699.67     | 757.25                | 0.00                    | 0.00                   | 0.00                  |
| 8,700.00              | 90.66           | 91.02       | 7,810.03            | -510.00    | 799.65     | 856.68                | 0.00                    | 0.00                   | 0.00                  |
| 8,800.00              | 90.66           | 91.02       | 7,808.88            | -511.77    | 899.63     | 956.11                | 0.00                    | 0.00                   | 0.00                  |

# Anadarko Petroleum Corp

## Planning Report

|                  |                            |                                     |                      |
|------------------|----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                       | <b>Local Co-ordinate Reference:</b> | Well Watkins 30-5-9H |
| <b>Company:</b>  | US ROCKIES REGION PLANNING | <b>TVD Reference:</b>               | rkb + gl @ 5796.00ft |
| <b>Project:</b>  | COLORADO CENTRAL ZONE - 83 | <b>MD Reference:</b>                | rkb + gl @ 5796.00ft |
| <b>Site:</b>     | ARAPAHOE_WATKINS 6 PAD     | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | Watkins 30-5-9H            | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | Watkins 30-5-9H            |                                     |                      |
| <b>Design:</b>   | Watkins 30-5-9H (wp01)     |                                     |                      |

| Planned Survey      |                 |             |                     |            |            |                       |                         |                        |                       |  |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |  |
| 8,900.00            | 90.66           | 91.02       | 7,807.73            | -513.55    | 999.60     | 1,055.53              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,000.00            | 90.66           | 91.02       | 7,806.58            | -515.33    | 1,099.58   | 1,154.96              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,100.00            | 90.66           | 91.02       | 7,805.43            | -517.10    | 1,199.56   | 1,254.39              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,200.00            | 90.66           | 91.02       | 7,804.28            | -518.88    | 1,299.54   | 1,353.82              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,300.00            | 90.66           | 91.02       | 7,803.13            | -520.65    | 1,399.51   | 1,453.24              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,400.00            | 90.66           | 91.02       | 7,801.98            | -522.43    | 1,499.49   | 1,552.67              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,500.00            | 90.66           | 91.02       | 7,800.83            | -524.21    | 1,599.47   | 1,652.10              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,600.00            | 90.66           | 91.02       | 7,799.68            | -525.98    | 1,699.45   | 1,751.52              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,700.00            | 90.66           | 91.02       | 7,798.53            | -527.76    | 1,799.42   | 1,850.95              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,800.00            | 90.66           | 91.02       | 7,797.38            | -529.53    | 1,899.40   | 1,950.38              | 0.00                    | 0.00                   | 0.00                  |  |
| 9,900.00            | 90.66           | 91.02       | 7,796.23            | -531.31    | 1,999.38   | 2,049.81              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,000.00           | 90.66           | 91.02       | 7,795.08            | -533.09    | 2,099.36   | 2,149.23              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,100.00           | 90.66           | 91.02       | 7,793.93            | -534.86    | 2,199.33   | 2,248.66              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,200.00           | 90.66           | 91.02       | 7,792.78            | -536.64    | 2,299.31   | 2,348.09              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,300.00           | 90.66           | 91.02       | 7,791.63            | -538.41    | 2,399.29   | 2,447.51              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,400.00           | 90.66           | 91.02       | 7,790.48            | -540.19    | 2,499.27   | 2,546.94              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,500.00           | 90.66           | 91.02       | 7,789.34            | -541.96    | 2,599.25   | 2,646.37              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,600.00           | 90.66           | 91.02       | 7,788.19            | -543.74    | 2,699.22   | 2,745.80              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,700.00           | 90.66           | 91.02       | 7,787.04            | -545.52    | 2,799.20   | 2,845.22              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,800.00           | 90.66           | 91.02       | 7,785.89            | -547.29    | 2,899.18   | 2,944.65              | 0.00                    | 0.00                   | 0.00                  |  |
| 10,900.00           | 90.66           | 91.02       | 7,784.74            | -549.07    | 2,999.16   | 3,044.08              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,000.00           | 90.66           | 91.02       | 7,783.59            | -550.84    | 3,099.13   | 3,143.50              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,100.00           | 90.66           | 91.02       | 7,782.44            | -552.62    | 3,199.11   | 3,242.93              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,200.00           | 90.66           | 91.02       | 7,781.29            | -554.40    | 3,299.09   | 3,342.36              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,300.00           | 90.66           | 91.02       | 7,780.14            | -556.17    | 3,399.07   | 3,441.79              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,400.00           | 90.66           | 91.02       | 7,778.99            | -557.95    | 3,499.04   | 3,541.21              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,500.00           | 90.66           | 91.02       | 7,777.84            | -559.72    | 3,599.02   | 3,640.64              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,600.00           | 90.66           | 91.02       | 7,776.69            | -561.50    | 3,699.00   | 3,740.07              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,700.00           | 90.66           | 91.02       | 7,775.54            | -563.28    | 3,798.98   | 3,839.50              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,800.00           | 90.66           | 91.02       | 7,774.39            | -565.05    | 3,898.95   | 3,938.92              | 0.00                    | 0.00                   | 0.00                  |  |
| 11,900.00           | 90.66           | 91.02       | 7,773.24            | -566.83    | 3,998.93   | 4,038.35              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,000.00           | 90.66           | 91.02       | 7,772.09            | -568.60    | 4,098.91   | 4,137.78              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,100.00           | 90.66           | 91.02       | 7,770.94            | -570.38    | 4,198.89   | 4,237.20              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,200.00           | 90.66           | 91.02       | 7,769.79            | -572.15    | 4,298.86   | 4,336.63              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,300.00           | 90.66           | 91.02       | 7,768.64            | -573.93    | 4,398.84   | 4,436.06              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,400.00           | 90.66           | 91.02       | 7,767.49            | -575.71    | 4,498.82   | 4,535.49              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,500.00           | 90.66           | 91.02       | 7,766.35            | -577.48    | 4,598.80   | 4,634.91              | 0.00                    | 0.00                   | 0.00                  |  |
| 12,530.01           | 90.66           | 91.02       | 7,766.00            | -578.01    | 4,628.80   | 4,664.75              | 0.00                    | 0.00                   | 0.00                  |  |
| Watkins 30-5-9H BHL |                 |             |                     |            |            |                       |                         |                        |                       |  |

| Design Targets            |               |              |          |            |            |                 |                |           |             |  |
|---------------------------|---------------|--------------|----------|------------|------------|-----------------|----------------|-----------|-------------|--|
| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude  | Longitude   |  |
| Watkins 30-5-9H BHL       | 0.00          | 0.00         | 7,766.00 | -578.01    | 4,628.80   | 1,671,574.61    | 3,257,328.53   | 39.673716 | -104.585812 |  |
| - hit/miss target         |               |              |          |            |            |                 |                |           |             |  |
| - Shape                   |               |              |          |            |            |                 |                |           |             |  |
| - plan hits target center |               |              |          |            |            |                 |                |           |             |  |
| - Point                   |               |              |          |            |            |                 |                |           |             |  |

# Anadarko Petroleum Corp

## Planning Report

|                  |                            |                                     |                      |
|------------------|----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                       | <b>Local Co-ordinate Reference:</b> | Well Watkins 30-5-9H |
| <b>Company:</b>  | US ROCKIES REGION PLANNING | <b>TVD Reference:</b>               | rkb + gl @ 5796.00ft |
| <b>Project:</b>  | COLORADO CENTRAL ZONE - 83 | <b>MD Reference:</b>                | rkb + gl @ 5796.00ft |
| <b>Site:</b>     | ARAPAHOE_WATKINS 6 PAD     | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | Watkins 30-5-9H            | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | Watkins 30-5-9H            |                                     |                      |
| <b>Design:</b>   | Watkins 30-5-9H (wp01)     |                                     |                      |

| Casing Points       |                     |        |                     |                   |  |
|---------------------|---------------------|--------|---------------------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name   | Casing Diameter (") | Hole Diameter (") |  |
| 2,010.00            | 2,010.00            | 9 5/8" | 9-5/8               | 12-1/4            |  |
| 8,180.24            | 7,816.00            | 7"     | 7                   | 8-3/4             |  |

| Formations          |                     |                |           |         |                   |  |
|---------------------|---------------------|----------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name           | Lithology | Dip (°) | Dip Direction (°) |  |
| 1,863.00            | 1,863.00            | Fox Hills      |           |         |                   |  |
| 5,148.07            | 5,132.00            | Sussex         |           |         |                   |  |
| 6,224.27            | 6,202.00            | Shannon        |           |         |                   |  |
| 7,633.89            | 7,581.00            | Sharon Springs |           |         |                   |  |
| 7,733.83            | 7,656.00            | Niobrara       |           |         |                   |  |